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Notes on some Ferruginous White-eye x Tufted Duck hybrids

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As stated by Gray (1958) hybridization between the Ferruginous White-eye *Aythya nyroca* (Guldenstadt) and the Tufted Duck *Aythya fuligula* (Linnaeus) has occurred in both directions, and hybrids have frequently been reported both in the wild and in captivity.

I do not propose to list in detail all the published records of crosses between these species. However, it is of interest to note that at the Zoological Society of London this cross occurred on some seventeen occasions from 1848–1861, the hybrids continuing to breed either *inter se* or with one of the parents (see Sclater *Proc. Zool. Soc.* 1880: 524). According to various authorities the hybrids are fertile, and so are their progeny. De Selys-Longchamps (1856) gives details of the further cross:—

Ferruginous White-eye x Tufted Duck

———————————

Ferruginous White-eye

the progeny of which exhibited characters that were 75% Ferruginous White-eye and 25% Tufted Duck. H. Wormald, following a visit to Lord Grey's collection at Fallodon in 1925, remarked that there was quite a flock of these hybrids and that "apparently they all come alike whether bred as above (i.e. Ferruginous White-eye x Tufted Duck) or *inter se*." Recent examples of this cross occurred at the Wildfowl Trust at Slimbridge in 1952, and a male was seen in Regents Park, London, by Mr. D. I. M. Wallace in April 1961.

In spite of the numerous occasions on which these hybrids have been reported, detailed descriptions appear to be lacking. The present paper is based upon two specimens of this cross, a male and female as follows:—

(1) Ferruginous White-eye x Tufted Duck.

Sex of hybrid—male. Specimen in the British Museum (Natural History Reg. No. 71.3.20.3. This bird was bred at the Zoological Society of London and presented to the museum, it is presumably the specimen listed in the *B. M. Cat. Birds.* xxvii: 349.

Head and neck—dark reddish-chestnut, richest on the crown which is of normal White-eye shade; cheeks and remainder of the face and neck are browner and darker in shade than in the male White-eye, and there is less contrast between the neck and the colour of the back; the feathers of the nape are slightly loose and elongated; auricular area blackish with a metallic-green gloss; tiny white chin spot.

Upperparts—back and mantle blackish-brown with an olive gloss just discernible; mantle and scapulars with faint bay freckling; upper mantle contrasting slightly with lower mantle and back.

Wings—primaries dark brown with olive gloss on distal portions, inner webs shading to whitish; secondaries white with dark brown tips glossed with olive; innermost secondaries entirely blackish-brown, also glossed with olive-green; primary coverts similar; underwing white.

Underparts—breast rich reddish-chestnut, much darker and blacker than in male White-eye, with small darker blackish-brown tips to some feathers giving a faint and obscure spotted effect in places; very faint trace of blackish collar separating neck from breast; sides of lower breast and flanks paler cinnamon-brown, faintly freckled with whitish; vent and belly ashy-brown freckled and vermiculated with whitish-brown on the terminal parts of the feathers; under tail coverts white; remainder of underparts silky white.

In addition to this specimen there is a mounted and unregistered male example of the same parentage bred at the Zoological Society of London in 1858. The whole head and neck with the exception of the crown and forehead are blackish with a strong metallic-green gloss as in Baer's Pochard, the mottling on the flanks is less cinnamon, and the back and mantle are more uniform, otherwise the plumage is identical to that described above.

(2) Tufted Duck x Ferruginous White-eye.

Sex of hybrid—female. A wild-taken specimen shot at Nieuwkeep, Holland, on 8th September, 1905, now in the Leyden Museum. Reg. No. 255.

This bird was recorded by Van Oort (1908) and the parentage given above is taken from this paper, from the morphology of the bird it seems probable that the male parent was in fact the Tufted Duck.

Upperparts—generally of the appearance of a female Tufted Duck, but there is no contrast between the mantle and back as in that species, and the vermiculation of the feathers is nearly absent; nuchal crest present; white patch on each side of the base of the bill, this also extends across the forehead above the culmen; slight olive gloss on the primaries and secondaries.

Underparts—chin white; throat and neck dark brown; feathers of the remainder of the underparts pale brown with small or broader buff or white edges and tips.

Soft parts—iris yellow; bill grey-black; feet yellowish-grey, webs black.

Measurements

TABLE 1

Measurements in Millimetres of Hybrids and Parental Species

	Hybrids			*Ferruginous White-eye*		*Tufted Duck*	
	♂	♂	♀	♂	♀	♂	♀
Wing	178	—	195	178–193	172–185	198–208	189–202
Culmen from feathering	40	47 (from skull)	38	40–43	36–40	38–42	38–41
Width of bill at nostrils	20.5	22	20	20–21	19.5–21	22–24	20.5–21
Depth of bill at nostrils	17.5	18	19	15–18	16–17	18	18.5–19
Maximum width	24	23	24	22–23	22.5–23	25–25.5	23–24.5

It can be seen from the above table that the male hybrid is a small bird with the wing and culmen measurements at the minimum for the male Ferruginous White-eye. The width of the bill at the posterior border of the nostrils is much the same as in the male White-eye, but it is a little more spatulate as indicated by the greater maximum width which approaches that of the female Tufted Duck. The depth of the bill is also closer to the Tufted Duck and considerably less than that of the male White-eye.

In the case of the female hybrid the wing measurement is well within the range of that for the female Tufted Duck; the culmen measurement is within the range of the female of both the parental species. It may be noted that, as in the male hybrid, the maximum width and depth of the bill at the posterior border of the nostrils is in excess of that of the White-eye and agrees with the Tufted Duck.

DISCUSSION

Interspecific hybrids in the Anatidae frequently exhibit characters that are not referable to either of the parental species, and which may have a phylogenetical significance. Harrison (1953) has suggested the term "heterophoric reverse mutation" to cover such cases. The recombination of genes at the species level has produced in the male hybrid under discussion just such a character, namely the blackish coloration glossed with metallic-green, which is noticeable on the head, particularly in the auricular region. I have compared this hybrid with specimens of Baer's Pochard *Aythya baeri* (Radde), and the colour of the auricular region of the head is absolutely identical in both species. Baer's Pochard is the only species in the White-eyed Pochard group to have the head so coloured. The colour and pattern of the vent of the hybrid is also identical to that found in Baer's Pochard. A character common to the Tufted Duck,

Baer's Pochard and the Ferruginous White-eye is the white spot on the chin, in the male hybrid this is present but considerably reduced in size. Among the characters found in this hybrid are some that are plainly referable to one or other of the parental species, as is to be expected. The occipital crest of the Tufted Duck is present, and the olive gloss of the primaries, secondaries, and wing coverts of the White-eye is equally evident in this individual.

The female hybrid also exhibits some interesting characters, namely the colour and pattern of the underparts and the white at the base of the bill. The former character agrees closely with that described and illustrated for the Tufted Duck by the Drs. Harrison (1960 a & b and 1961), the left hand bird in their first plate and the upper plate in the 1961 paper being the closest match; this subject is also commented upon by Gillham (1960). It is of particular interest to note that the examples of mottled underparts so far recorded by the Drs. Harrison have all been of first winter females. The Dutch bird, however, appears to be an adult female in winter plumage and there are no traces of moult in evidence. Whether or not the condition is of more frequent expression in first winter than in adult plumage remains to be seen, further research will no doubt elucidate this matter. The second character, that of the white at the base of the bill, and also on the chin, has been the subject of discussion before, i.e. Harrison (1954) and Sage (1955), where its possible importance as a reversionary character towards the Scaup *Aythya marila* (L.) is stressed.

It is desirable to consider the above characters further in view of their probable evolutionary importance. In their discussion of the significance of the mottled underside pattern of the Tufted Duck Harrison & Harrison (*op cit*) touch upon the fact that this character may represent a phylogenetic link towards some of the dark-bellied species that are included in the Tribe Aythyini, such as the Red-crested Pochard *Netta rufina* (Pallas), the South American and African Pochards *Netta erythrophthalma*, and the Rosy-billed Pochard *Netta peposaca* (Vieillot). However, in the present paper I wish to draw attention to the possible significance of this character as illustrating close relationship with a North American species of the genus, the Ring-necked Duck *Aythya collaris* (Donovan). Plate 3 of this paper should be compared with the upper part of plate 2 in Mendall (1958). It will be seen that not only does the female Ring-necked Duck possess a plumage phase in which the underparts resemble those of the female Tufted Duck x Ferruginous White-eye hybrid, but that a white chin spot and some white around the base of the bill are also a normal character in this species. The fact that the Tufted Duck and the Ring-necked Duck are closely related has long been recognised, Mendall on page 2 of his valuable monograph writes "The duck most closely related to the ring-neck, however, appears to be the tufted duck, *Aythya fuligula*, an Old World species".

The question of the significance of white at the base of the bill and white under-tail coverts in the Tufted Duck has, as already mentioned, been the subject of previous papers. In addition to those already quoted Gillham (1957) has dealt at some length with the matter and apparently tends to the opinion that they are normal plumage phases. However, whilst admitting that more evidence is required to clinch the matter, I

PLATE 1. Ferruginous White-eye x Tufted Duck, underside of male.

PLATE 2. Ferruginous White-eye x Tufted Duck, side view of male.

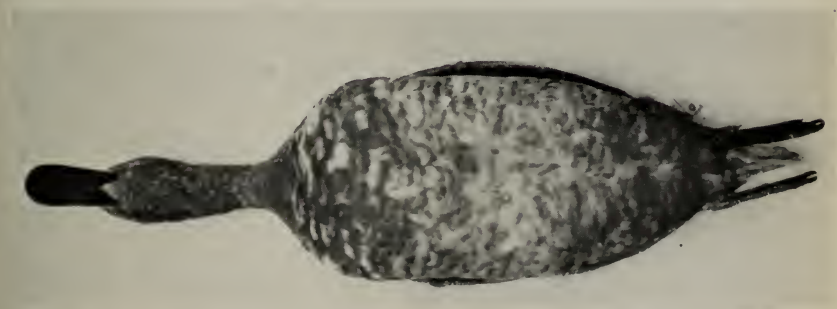

PLATE 3. Tufted Duck x Ferruginous White-eye, underside of adult female.

concur with the Drs. Harrison in considering these characters, as found in the Tufted Duck, to be of evolutionary significance. The same remark applies tc their occurrence in hybrids where they obviously appear as a result of polygenic action. It would greatly help in confirming this theory if either or both of these characters were found to occur occasionally in some other *Aythya* species where they are not normally found, such as white under-tail coverts in *A. affinis*, *A. collaris*, or *A. marila;* or white at the base of the bill in *A. nyroca*, *A. baeri* or *A. australis*. In this connection

it is not without interest that a juvenile male of the cross Tufted Duck x Pochard has a considerable amount of white at the base of the bill (see Sage 1961), one also recalls the fact that the females of both races of *Netta erythrophthalma* have some white at the base of the bill and on the sides of the face.

The pattern of evolution in the Aythyini is still far from clear, and there are a number of problems awaiting final solution. There is, for instance, the curious geographical distribution of the two races of *Netta erythrophthalma*, the typical race in northern South America and *N.e.brunnea* in East and South Africa. How has this come about? These two races are apparently very closely related to the Rosy-billed Pochard also a South American species, but at the same time they appear also to have affinities with the Red-crested Pochard, a species with a wide Palaearctic distribution. As has been shown earlier in this paper the Tufted Duck sometimes exhibits characters that suggest genetical affinity with the Ring-necked Duck which is a North American species, and possibly also with the dark-bellied species of *Netta*. It will be of extreme interest if it can ever be established where Baer's Pochard fits into the pattern of evolution; it may well prove to be an archaic form and as equally important phylogenetically as the Baikal Teal *Anas formosa* Georgi is considered to be relative to the genus *Anas*. (see Sage 1960 and references quoted therein).

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